Release in Fell

HISTORY

PRODUCTION DEPT.
FILE COPY

EAST POPLAR UNIT WELL NO. 72

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

EAST POPLAR UNIT WELL NO. 72

ROOSEVELT COUNTY, MONTANA

MURPHY CORPORATION--OPERATOR

WELL HISTORY

WELL NO.:	East Poplar Unit No. 72
LOCATION:	SW SE Section 22, Township 28 North, Range 51 East
CONTRACTOR:	Zach Brooks Drilling Company
ELEVATION:	2145' Ground - 2157' K.B.
SPUDDED:	8:00 A.M., March 16, 1956
COMPLETED:	2:00 A.M., April 8, 1956 (Plugged and Abandoned)
TOTAL DEPTH:	5899' Schlumberger equals 5898' Driller
CASING:	9-5/8" @ 1060.33' with 400 sacks cement
TUBING:	None
PERFORATIONS:	None
PACKER:	None
ACID TREATMENT:	None
INITIAL POTENTIAL:	Plugged and Abandoned
TYPE COMPLETION:	Plugged and Abandoned

EPU #72

A.F.E. No. 56-4-50

AUTHORITY FOR EXPENDITURE
MURPHY CORPORATION - EAST POPLAR UNIT NO. 72
SW SE Section 22-T28N-R51E, Roosevelt County, Montana

WELL DRILLING & CONSTRUCTION EXPENSE:	TO CSG. PT.	COMP. & EQUIP.	TOTAL COST
Drilling - Footage - 5880' @ $5.25/ft.	$ 30,870		$ 30,870
Daywork - 4 days @ $850/day & 2 days @ $775/day	3,400	$ 1,550	3,400 1,550
Loc. survey, permit & prep.	1,000		1,000
Roads, fences, cattleguard, etc.	600		600
Mud mat. & chem., incl. oil & gas	4,000		4,000
Fuel and water	2,500	500	3,000
Cementing casing	950	1,250	2,200
Coring materials & services	900		900
Testing services incl. swabbing	1,200		1,200
Other logs, surveys & analysis	1,200	800	2,000
Perforating services		600	600
Hydrafrac, acidize, etc. incl. oil		800	800
Float equip., centralizers, etc.	250	650	900
Trucking, welding & other labor	500	500	1,000
Supervision & Miscellaneous	250	250	500
Total Est. Well Drlg. & Const. Exp.	$ 47,620	$ 6,900	$ 54,520
WELL EQUIPMENT COSTS:			
Casing: 250' of 13-3/8" O.D.	$ 1,350		$ 1,350
Casing: 5880' of 5-1/2" O.D.		$ 9,750	9,750
Tubing: 5880' of 2-3/8" O.D.		3,585	3,585
Casing head & connections	300		300
Xmas tree & connections		1,300	1,300
Total Est. Well Equip. Costs	$ 1,650	$ 14,635	$ 16,285
Total Est. Cost of Well	$ 49,270	$ 21,535	$ 70,805
LEASE EQUIPMENT:			
Flow lines		$ 3,000	$ 3,000
Other line pipe, valves & fittings		500	500
Trucking, welding & other labor		500	500
Total Est. Cost of Lease Equip.		$ 4,000	$ 4,000
TOTAL EST. COST OF WELL & LEASE EQUIP.	$ 49,270	$ 25,535	$ 74,805

APPORTIONMENT OF TOTAL ESTIMATED COSTS

	%			
Murphy Corporation - Unit Operator	31.448470%	$ 15,495	$ 8,030	$ 23,525
Nunoco Company	2.096565%	1,033	535	1,568
Placid Oil Company	33.545035%	16,528	8,566	25,093
The Carter Oil Company	16.335860%	8,049	4,171	12,220
Phillips Petroleum Company	16.335860%	8,049	4,171	12,220
C. F. Lundgren	.238210%	117	61	178

APPROVAL OF EXPENDITURE

Requested by:

Harold McLean — 3/9/56
Division Production Supt. — Date

Recommend Approval:

Staff Production Engineer — Date

Recommend Approval:

J D Langford — 3/9/56
Division Manager — Date

Budget Supervisor — Date

Approved:

By — Date

Approved:

Vice President-Operations — Date

AL:eg
3-9-56

Permit Applications

Form No. 2
GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE!
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill	XX	Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

March 12, 1956

Following is a {notice of intention to do work / report of work done} on land {owned / leased} described as follows:

LEASE Allotted 1-37-Ind-12954 (3687)

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 72 SW SE Section 22 (m. sec.) 28N (Township) 51E (Range) M.P.M. (Meridian)

The well is located 660 ft. from {XX S} South line and 1979 ft. from {E XX} East line of Sec. 22

(Locate accurately on Plat on back of this form the well location, and show lease boundary.)

The elevation of the derrick floor above the sea level is 2145' Gr. - 2157' K.B.

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Will set approximately 250' of 13-3/8" O.D. pipe with 200 sacks of cement. Total depth is expected to be approximately 6000' so as to evaluate the producing section of the Madison formation. 5-1/2" O.D. casing will be set for production string. Adequate blow-out preventers will be installed.

ATTACHED CHECK FOR $75.00
FOR DRILLING PERMIT FEE.

RECEIVED
MAR 13 1956

AMOUNT $75.00
DRILLING PERMIT NO. 2640
RECEIPT NO. 270

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

Approved N.L.G.L. 3-14-56
Approved subject to conditions on reverse of form

Date 3/16/56

By [signature] Agent
Title District Office Agent

Company MURPHY CORPORATION

By Harold Milan
Harold Milan

Title Division Production Superintendent

Address 602 Midland Bank Bldg, Billings, Montan

NOTE:—Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL

15M--5-55

OVER

Locate well by footage measurement from legal subdivision line, lease or property line and nearest drilling or producible well, if any.

Form No. 2
File at
Billings
or Shelby

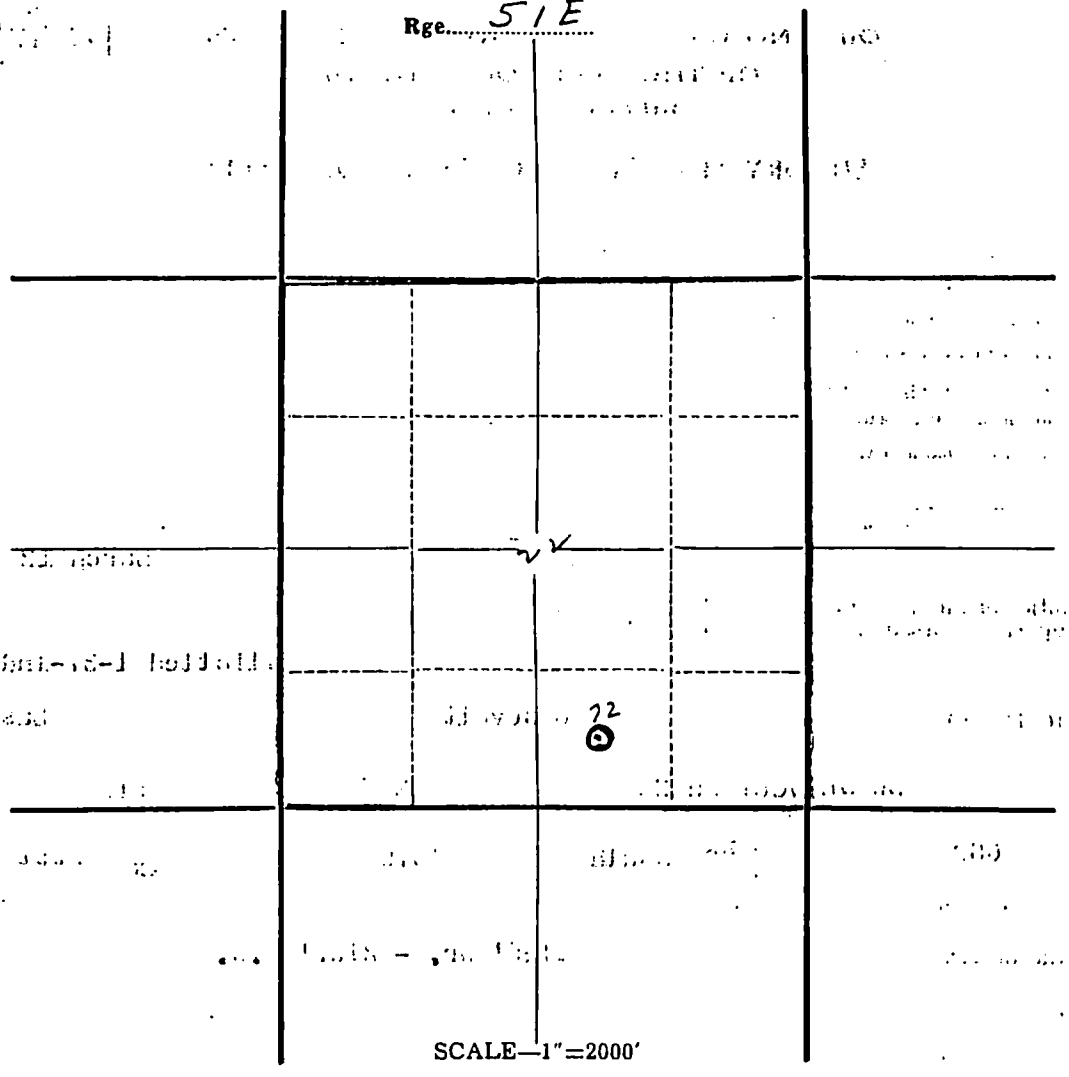
Rge. 51 E

Form No. 2
File at
Billings
or Shelby

Locate
Well
Correctly

Twp. 28N

Locate
Lease
Boundary



SCALE—1"=2000'

THE NOTICE OF INTENTION TO DRILL THIS WELL IS APPROVED SUBJECT TO THE FOLLOWING CONDITIONS:

1. Any person, before commencing the drilling of any oil or gas well, shall secure from the commission a drilling permit and shall pay to the commission therefor for the following amounts: for each well whose estimated depth is thirty-five hundred (3500) feet or less, twenty-five dollars ($25.00); from thirty-five hundred and one (3501) feet to seven thousand (7000) feet, seventy-five dollars ($75.00); seven thousand (7000) feet and deeper, one hundred fifty dollars ($150.00).
2. No well is to be spudded in unless the proper surety drilling bond has been posted and approved by the Oil and Gas Conservation Commission of the State of Montana.
3. Cable tool operators must construct an adequate sump to contain all mud and water bailed from the hole.
4. Surface or conductor casing must be properly cemented by an approved method to act as a tie in case an unexpected flow of oil, gas, or water should be encountered, unless special permission has been granted for formation shut-off.
5. Any contemplated change in status of a well such as to plug and abandon, deepen, plug back, redrill, alter casing, etc., must be presented on Sundry Notices and Report of Wells form for approval by agent prior to commencement of work.
6. All substantial showings of oil or gas must be tested for commercial possibilities before drilling ahead. Each such showing must be adequately protected by casing, mud or cement, as drilling progresses.
7. The production string must be cemented unless a formation shut-off or packer is approved by the agent. Sufficient cement must be used to protect the casing and possible productive formation exposed in the process of drilling not otherwise protected.
8. All production strings of casing must be tested by bailing or pressure to determine if there is a tight bond with the formation or possible leaks in the casing. The results of the test must be reported on Sundry Notices and Report of Wells form, said report to include the size, weight, thread and length of casing, amount of cement used, and date work is done. If test shows failure, the defect must be corrected before any drilling operations are resumed.
9. A satisfactory drilling record must be kept for each tour, showing top and thickness of each and all formations drilled and all other information of value, one copy of which is to be kept at the rig while drilling is in progress for examination when an agent visits the well.
10. All producing wells must be marked with name of the operator, number of the well, and location, using reasonable precautions to preserve these markings at all times.
11. Copies of all directional surveys, electrical logs, or tops from electrical log if electric survey is run, formation tests, and cementing record, as furnished by the cementing company, etc., must be filed with the State Inspector of the district together with four copies of the log, upon completion of the well.
12. All work must be done in conformity with the regulations of the Oil & Gas Conservation Commission of the State of Montana, as contained in "General Rules and Regulations," and amendments thereto, as well as regulations prescribed in lieu thereof.

Form No. 2
GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE!
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

RECEIVED
MAR 21 1956
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	X
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

March 20, 1956

Following is a { ~~Notice of Intention to Drill~~ / report of work done } on land { ~~fee~~ / leased } described as follows:

LEASE Allotted 1-37-Ind-12954 (3687)

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 72 SW SE Section 22 (m. sec.) 28N (Township) 51E (Range) M.P.M. (Meridian)

The well is located 660 ft. from { ~~N~~ / S } South line and 1979 ft. from { E / ~~W~~ } East line of Sec. 22

(Locate accurately on Plat on back of this form the well location, and show lease boundary.)

The elevation of the derrick floor above the sea level is 2157' K.B.

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Spudded at 8:00 A.M., 3-16-56. Ran and cemented 36 jts. 1048.83' of 9-5/8", 32#, H-40, 8rd. thd., R-2, ST&C, American casing. Landed 11.50' below RKB at 1060.33'. Howco float shoe at 1060.33', Howco centralizer at 1045'. Cemented with 400 sacks of Ideal regular cement with 2 percent $CaCl_2$. Circulated approximately 50 sacks of clean cement. Bumped plug with 1000#, released pressure, float held ok. Job complete at 4:00 P.M., 3-18-56.

Approved U.S.G.S 3-21-56
Approved subject to conditions on reverse of form

Date 3/23/56

By John R. Krueger
Title
District Office Agent

Company MURPHY CORPORATION

By Harold Milan

Title Division Production Superintendent

Address 602 Midland Bank Bldg, Billings, Mont

NOTE:—Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL

15M--5-55

OVER

Locate well by footage measurement from legal subdivision line, lease or property line and nearest drilling or producible well, if any.

Form No. 2
File at
Billings
or Shelby

Rge. 5 E

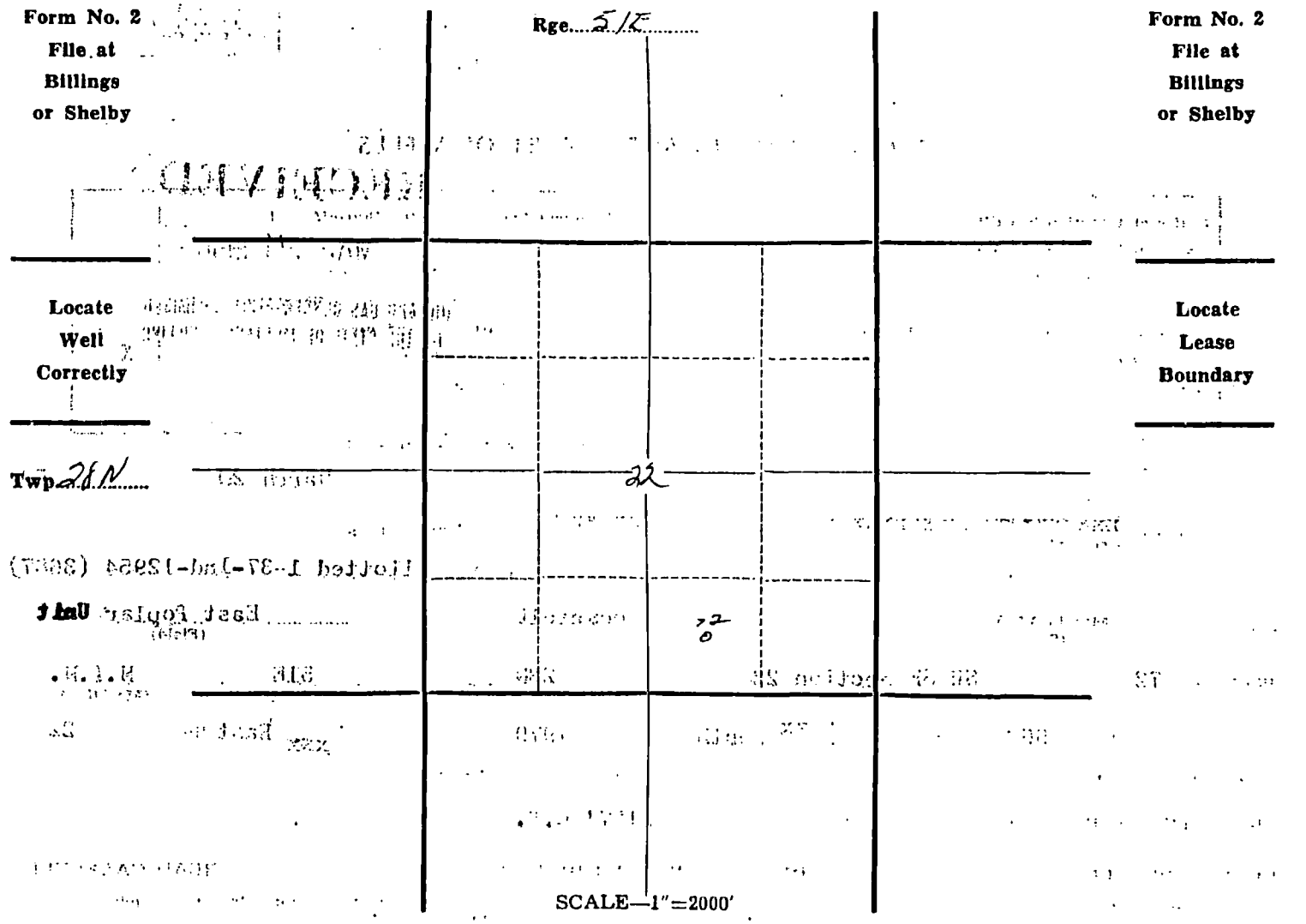
Form No. 2
File at
Billings
or Shelby

Locate
Well
Correctly

Locate
Lease
Boundary

Twp. 21 N

22



SCALE—1"=2000'

THE NOTICE OF INTENTION TO DRILL THIS WELL IS APPROVED SUBJECT TO THE FOLLOWING CONDITIONS:

1. Any person, before commencing the drilling of any oil or gas well, shall secure from the commission a drilling permit and shall pay to the commission therefor for the following amounts: for each well whose estimated depth is thirty-five hundred (3500) feet or less, twenty-five dollars ($25.00); from thirty-five hundred and one (3501) feet to seven thousand (7000) feet, seventy-five dollars ($75.00); seven thousand (7000) feet and deeper, one hundred fifty dollars ($150.00).
2. No well is to be spudded in unless the proper surety drilling bond has been posted and approved by the Oil and Gas Conservation Commission of the State of Montana.
3. Cable-tool operators must construct an adequate sump to contain all mud and water bailed from the hole.
4. Surface or conductor casing must be properly cemented by an approved method to act as a tie in case an unexpected flow of oil, gas, or water should be encountered, unless special permission has been granted for formation shut-off.
5. Any contemplated change in status of a well such as to plug and abandon, deepen, plug back, redrill, alter casing, etc., must be presented on Sundry Notices and Report of Wells form for approval by agent prior to commencement of work.
6. All substantial showings of oil or gas must be tested for commercial possibilities before drilling ahead. Each such showing must be adequately protected by casing, mud or cement, as drilling progresses.
7. The production string must be cemented unless a formation shut-off or packer is approved by the agent. Sufficient cement must be used to protect the casing and possible productive formation exposed in the process of drilling not otherwise protected.
8. All production strings of casing must be tested by bailing or pressure to determine if there is a tight bond with the formation or possible leaks in the casing. The results of the test must be reported on Sundry Notices and Report of Wells form, said report to include the size, weight, thread and length of casing, amount of cement used, and date work is done. If test shows failure, the defect must be corrected before any drilling operations are resumed.
9. A satisfactory drilling record must be kept for each tour, showing top and thickness of each and all formations drilled and all other information of value, one copy of which is to be kept at the rig while drilling is in progress for examination when an agent visits the well.
10. All producing wells must be marked with name of the operator, number of the well, and location, using reasonable precautions to preserve these markings at all times.
11. Copies of all directional surveys, electrical logs, or tops from electrical log if electric survey is run, formation tests, and cementing record, as furnished by the cementing company, etc., must be filed with the State Inspector of the district together with four copies of the log, upon completion of the well.
12. All work must be done in conformity with the regulations of the Oil & Gas Conservation Commission of the State of Montana, as contained in "General Rules and Regulations," and amendments thereto, as well as regulations prescribed in lieu thereof.

Budget Bureau No. 42-R359.1.
Approval expires 11-30-49.

m 9-331 b
ebruary 1957)

(SUBMIT IN TRIPLICATE)

Indian Agency Ft. Peck

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Allotte 1-37-Ind-12954

Lease No. E.P.U. (3687)

RECEIVED
APR 11 1956
U.S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

ENVIRONMENTAL
PROTECTION AGENCY
Re #13
NOV 5 1998
MONTANA OFFICE

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	X
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

April 10, 19 58

Well No. 72 is located 660 ft. from [N/S] line and 1979 ft. from [E/W] line of sec. 22

SW SE Section 22 (¼ Sec. and Sec. No.) 28N (Twp.) 51E (Range) M.P.M. (Meridian)

East Poplar (Field) Roosevelt (County or Subdivision) Montana (State or Territory)

The elevation of the derrick floor above sea level is 2157 ft. K.B.

DETAILS OF WORK

ORIGINAL FORWARDED TO CASPER

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Plugged and abandoned April 5, 1956. Plugged as follows—
Plug #1, 5850'-5775', 30 sacks Ideal cement.
Plug #2, 5754'-5629', 30 sacks Ideal cement.
Plug #3, 5580'-5455', 30 sacks Ideal cement.
Plug #4, 5366'-5318', 20 sacks Ideal cement.
Plug #5, 4910'-4990', 25 sacks Ideal cement.
Plug #6, 830'-900', 30 sacks Ideal cement.
Bottom of 9-5/8" surface casing.
Plug #7, 5 sacks cement top of 9-5/8" surface casing.

Rig released at 2:00 A.M., 4-6-56.

Approved FEB 6 - 1957
(Orig. Sgd.) H. H. PENRIGO
District Engineer

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company MURPHY CORPORATION

Address 602 Midland Bank Bldg.

Billings, Montana

By Harold Milam
Harold Milam

Title Division Production Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84376-4

Adapters—Material Size

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE!
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

RECEIVED
FEB 11 1957
OIL AND GAS CONSERVATION COMMISSION
STATE OF MONTANA

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	X
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

April 10, 1956

Following is a { report of work done } on land { leased } described as follows:

LEASE Allotted 1-37-Ind-12954 (3687)

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 72 SW SE Section 22 (m. sec.) 28N (Township) 51E (Range) M.P.M. (Meridian)

The well is located 660 ft. from { S } South line and 1979 ft. from { E } East line of Sec. 22

(Locate accurately on Plat on back of this form the well location, and show lease boundary.)

The elevation of the derrick floor above the sea level is 2157' K.B.

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Plugged and abandoned April 8, 1956. Plugged as follows--

Plug #1, 5850'-5775', 30 sacks Slo-set cement.
Plug #2, 5754'-5629', 50 sacks Slo-set cement.
Plug #3, 5580'-5455', 50 sacks Slo-set cement.
Plug #4, 5366'-5210', 60 sacks Slo-set cement.
Plug #5, 4910'-4990', 35 sacks Slo-set cement.
Plug #6, 830'- 900', 30 sacks Slo-set cement.
Bottom of 9-5/8" surface casing.
Plug #7, 8 sacks cement top of 9-5/8" surface casing.

Rig released at 2:00 A.M., 4-8-56.

RECEIVED
APR 11 1956
OIL AND GAS CONSERVATION COMMISSION
STATE OF MONTANA - BILLINGS

Approved subject to conditions on reverse of form U.S.G.S. approval 2-6-57

Date 2-8-57

By [signature] Title District Office Agent

Company MURPHY CORPORATION

By Harold Milam

Title Division Production Superintendent

Address 602 Midland Bank Bldg, Billings, Mont

NOTE:—Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL

16M--5-55

OVER

Locate well by footage measurement from legal subdivision line, lease or property line and nearest drilling or producible well, if any.

Form No. 2
File at
Billings
or Shelby

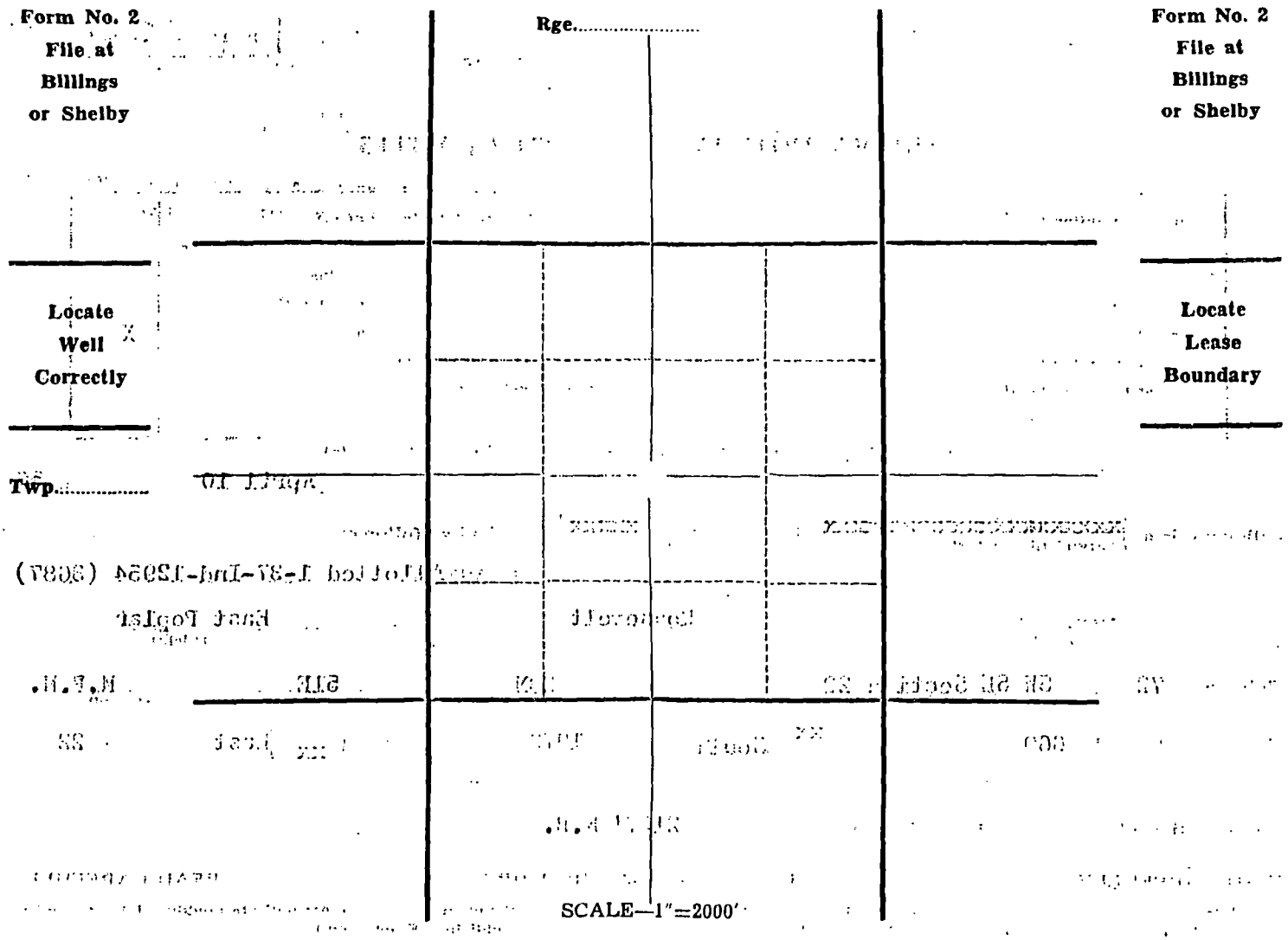
Rge.....

Form No. 2
File at
Billings
or Shelby

Locate
Well
Correctly

Locate
Lease
Boundary

Twp.....



SCALE—1"=2000'

THE NOTICE OF INTENTION TO DRILL THIS WELL IS APPROVED SUBJECT TO THE FOLLOWING CONDITIONS:

1. Any person, before commencing the drilling of any oil or gas well, shall secure from the commission a drilling permit and shall pay to the commission therefor for the following amounts: for each well whose estimated depth is thirty-five hundred (3500) feet or less, twenty-five dollars ($25.00); from thirty-five hundred and one (3501) feet to seven thousand (7000) feet, seventy-five dollars ($75.00); seven thousand (7000) feet and deeper, one hundred fifty dollars ($150.00).
2. No well is to be spudded in unless the proper surety drilling bond has been posted and approved by the Oil and Gas Conservation Commission of the State of Montana.
3. Cable tool operators must construct an adequate sump to contain all mud and water baled from the hole.
4. Surface or conductor casing must be properly cemented by an approved method to act as a tie in case an unexpected flow of oil, gas, or water should be encountered, unless special permission has been granted for formation shut-off.
5. Any contemplated change in status of a well such as to plug and abandon, deepen, plug back, redrill, alter casing, etc., must be presented on Sundry Notices and Report of Wells form for approval by agent prior to commencement of work.
6. All substantial showings of oil or gas must be tested for commercial possibilities before drilling ahead. Each such showing must be adequately protected by casing, mud or cement, as drilling progresses.
7. The production string must be cemented unless a formation shut-off or packer is approved by the agent. Sufficient cement must be used to protect the casing and possible productive formation exposed in the process of drilling not otherwise protected.
8. All production strings of casing must be tested by bailing or pressure to determine if there is a tight bond with the formation or possible leaks in the casing. The results of the test must be reported on Sundry Notices and Report of Wells form, said report to include the size, weight, thread and length of casing, amount of cement used, and date work is done. If test shows failure, the defect must be corrected before any drilling operations are resumed.
9. A satisfactory drilling record must be kept for each tour, showing top and thickness of each and all formations drilled and all other information of value, one copy of which is to be kept at the rig while drilling is in progress for examination when an agent visits the well.
10. All producing wells must be marked with name of the operator, number of the well, and location, using reasonable precautions to preserve these markings at all times.
11. Copies of all directional surveys, electrical logs, or tops from electrical log if electric survey is run, formation tests, and cementing record, as furnished by the cementing company, etc., must be filed with the State Inspector of the district together with four copies of the log, upon completion of the well.
12. All work must be done in conformity with the regulations of the Oil & Gas Conservation Commission of the State of Montana, as contained in "General Rules and Regulations," and amendments thereto, as well as regulations prescribed in lieu thereof.

Budget Bureau No. 42-R-355.3.
Approval expires 12-31-55.

Form 9-330

Billings

U. S. Land Office Allotted 1-37-Ind-12954

Serial Number

Lease or Permit to Prospect E.P.U. (3687)

UNITED STATES

DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

LOCATE WELL CORRECTLY

Company MURPHY CORPORATION Address 602 Midland Bank Bldg, Bigs, Montana

Lessor or Tract E.P.U. Allotted-1-37-Ind-12954 Field East Poplar State Montana

Well No. 72 Sec. 22 T. 28N R. 51E Meridian M.P.M. County Roosevelt

Location 660 ft. {N.} of 5 Line and 1979 ft. {E.} of E Line of Section 22 Elevation 2157' K.B
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed Harold Murphy

Date April 18, 1956 Title Division Production Supt.

The summary on this page is for the condition of the well at above date.

Commenced drilling March 16, 19 56 Finished drilling Plugged & Abandoned April 8, 19 56

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from ____ to ____ No. 4, from ____ to ____

No. 2, from ____ to ____ No. 5, from ____ to ____

No. 3, from ____ to ____ No. 6, from ____ to ____

IMPORTANT WATER SANDS

No. 1, from ____ to ____ No. 3, from ____ to ____

No. 2, from ____ to ____ No. 4, from ____ to ____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
9-5/8"	32#	8	American	1048.83'	Howco				surface

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
9-5/8"	1060.33'	400	Pump & Plug		

PLUGS AND ADAPTERS

Heaving plug—Material ____ Length ____ Depth set ____

Adapters—Material ____ Size ____

FOLD | MARK

Budget Bureau No. 42-R359.1.
Approval expires 11-30-49.

Form 9-331 b
(February 1937)

RECEIVED
APR 11 1956
U. S. GEOLOGICAL SURVEY
BILLINGS, MONTANA

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Ft. Peck

Allotte 1-97-Ind-12954

Lease No. E.P.U. (3687)

Ref #15

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	X
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

April 10, 1956

Well No. 72 is located 660 ft. from [S] line and 1979 ft. from [E] line of sec. 22

SW SE Section 22 (¼ Sec. and Sec. No.) | 30N (Twp.) | 51E (Range) | M.P.M. (Meridian)

East Poplar (Field) | Roosevelt (County or Subdivision) | Montana (State or Territory)

The elevation of the derrick floor above sea level is 2157 ft. K.B.

DETAILS OF WORK

ORIGINAL FORWARDED TO CASPER

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Plugged and abandoned April 6, 1956. Plugged as follows---
Plug #1, 5850'-5775', 30 sacks Ale-set cement.
Plug #2, 5754'-5629', 30 sacks Ale-set cement.
Plug #3, 5560'-5455', 30 sacks Ale-set cement.
Plug #4, 5366'-5310', 30 sacks Ale-set cement.
Plug #5, 4910'-4980', 35 sacks Ale-set cement.
Plug #6, 830'- 900', 30 sacks Ale-set cement.
Bottom of 9-5/8" surface casing.
Plug #7, 8 sacks cement top of 9-5/8" surface casing.

Rig released at 2:00 A.M., 4-6-56.

Approved FEB 6 - 1957
(Orig. Sgd.) H. H. PERRIGO
District Engineer

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company MURPHY CORPORATION

Address 602 Midland Bank Bldg.

Billings, Montana

By Harold Milam
Harold Milam

Title Division Production Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—84376-4

Adapter—Material | Size

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE!
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

RECEIVED
FEB 11 1957
OIL AND GAS CONSERVATION COMMISSION
STATE OF MONTANA

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	X
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

April 10, 1956

Following is a {report of work done} on land {leased} described as follows:

LEASE Allotted 1-37-Ind-12954 (3687)

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 72 SW SE Section 22 (m. sec.) 28N (Township) 51E (Range) M.P.M. (Meridian)

The well is located 660 ft. from {S} South line and 1979 ft. from {E} East line of Sec. 22

(Locate accurately on Plat on back of this form the well location, and show lease boundary.)

The elevation of the derrick floor above the sea level is 2157' K.B.

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands: show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Plugged and abandoned April 8, 1956. Plugged as follows—
Plug #1, 5850'-5775', 30 sacks Slo-set cement.
Plug #2, 5754'-5629', 50 sacks Slo-set cement.
Plug #3, 5580'-5455', 50 sacks Slo-set cement.
Plug #4, 5366'-5210', 60 sacks Slo-set cement.
Plug #5, 4910'-4990', 35 sacks Slo-set cement.
Plug #6, 830'- 900', 30 sacks Slo-set cement.
Bottom of 9-5/8" surface casing.
Plug #7, 8 sacks cement top of 9-5/8" surface casing.

Rig released at 2:00 A.M., 4-8-56.

RECEIVED
APR 11 1956
OIL AND GAS CONSERVATION COMMISSION
STATE OF MONTANA - BILLINGS

U.S.G.S. approved 2-6-57

Approved subject to conditions on reverse of form

Date 2-8-57

By [signature] Title District Office Agent

Company MURPHY CORPORATION

By Harold Milam

Harold Milam

Title Division Production Superintendent

Address 602 Midland Bank Bldg, Billings, Mont.

NOTE:—Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL

15M--5-55

OVER

GEOLOGICAL DATA

MURPHY 72

CATE WELL CORRECTLY

809 Form No. 4 (Gen. Rule 206.3 & 231)

(SUBMIT IN TRIPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

RECEIVED
APR 14 1956
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA

LOG OF WELL

Company MURPHY CORPORATION Lease E.P.U. Allotted-1-37-Ind-12954 Well No. 72

Address 602 Midland Bank Bldg, Billings, Montana Field (or Area) East Poplar

The well is located 660 ft. from (S) line and 1979 ft. from (E) line of Sec. 22

Sec. 22 ; T. 28N ; R. 51E ; County Roosevelt ; Elevation 2157' K.B. (D.F., R.B. or G.L.)

Commenced drilling March 16, 19 56; Plugged & Abandoned April 8, 19 56

The information given herewith is a complete and correct record of the well. The summary on this page is for the condition of the well at the above date.

Completed as dry hole (oil well, gas well, dry hole)

Signed Harold Milam

Title Division Production Superintendent

Date April 13, 1956

IMPORTANT ZONES OF POROSITY

(denote oil by O, gas by G, water by W; state formation if known)

From ____ to ____ From ____ to ____
From ____ to ____ From ____ to ____
From ____ to ____ From ____ to ____
From ____ to ____ From ____ to ____

CASING RECORD

Size Casing	Weight Per Ft.	Grade	Thread	Casing Set	From	To	Sacks of Cement	Cut and Pulled from
9-5/8"	32#	H-40	8	1060.33'				

TUBING RECORD

Size Tubing	Weight Per Ft.	Grade	Thread	Amount	Perforations
none used					

COMPLETION RECORD

Rotary tools were used from 0 to 5899'
Cable tools were used from ____ to ____
Total depth 5899 ft.; Plugged back to -- T.D.; Open hole from ____ to ____

PERFORATIONS			ACIDIZED, SHOT, SAND FRACED, CEMENTED			
Interval From	Interval To	Number and Size and Type	Interval From	Interval To	Amount of Material Used	Pressure

(If P&A show plugs above)

RECEIVED
APR 14 1956
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA - BILLINGS

INITIAL PRODUCTION

(See attached Page 2 for plugging)

Well is producing from -- (pool) formation.

I. P. -- barrels of oil per -- hours (pumping or flowing) --
-- Mcf of gas per -- hours.
-- barrels of water per -- hours, or -- % W.C.

(OVER)

15M—5-55

INITIAL PRODUCTION—(Continued)

Initial 10-day average production _____ (bbl./day) (if taken)

Pressures (if measured): Tubing _____ psi flowing; _____ psi shut-in

Casing _____ psi flowing; _____ psi shut-in

Gravity _____ ° API (corrected to 60° F.)

DRILL STEM TESTS

D.S.T. No.	From	To	Tool Open (Min.)	Shut-In	F.P.	S.I.P.	Recovery	Cushion
				See attached Page 4				

LOGS RUN

Type	Intervals	
	From	To
~~See attached Page 3~~		

FORMATION RECORD

From	To	SAMPLE AND CORE NO. AND DESCRIPTION	Top of Formation
		See attached	

Budget Bureau No. 42-R-355.3.
Approval expires 12-31-55.

U. S. Land Office Billings
Serial Number Allotted 1-37-Ind-12954
Lease or Permit to Prospect E.P.U. (3687)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOCATE WELL CORRECTLY

LOG OF OIL OR GAS WELL

Company MURPHY CORPORATION Address 602 Midland Bank Bldg, Blgs, Montana

Lessor or Tract E.P.U. Allotted-1-37-Ind-12954 Field East Poplar State Montana

Well No. 72 Sec. 22 T. 28N R. 51E Meridian M.P.M. County Roosevelt

Location 660 ft. [N.] of S Line and 1978 ft. [E.] of E Line of Section 22 Elevation 2157' K.B.
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed Harold Murphy

Date April 13, 1956 Title Division Production Supt.

The summary on this page is for the condition of the well at above date.

Commenced drilling March 16, 19 56 Finished drilling Plugged & Abandoned April 8, 19 56

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from ..... to ..... No. 4, from ..... to .....

No. 2, from ..... to ..... No. 5, from ..... to .....

No. 3, from ..... to ..... No. 6, from ..... to .....

IMPORTANT WATER SANDS

ORIGINAL FORWARDED TO CASPER

No. 1, from ..... to ..... No. 3, from ..... to .....

No. 2, from ..... to ..... No. 4, from ..... to .....

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
9-5/8"	32#	8	American	1048.83'	Howco				surface

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
9-5/8"	1060.33'	400	Pump & Plug		

PLUGS AND ADAPTERS

Heaving plug—Material ..... Length ..... Depth set .....

Adapters—Material ..... Size .....

FOLD | MARK

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from 0 feet to 5899 feet, and from ..... feet to ..... feet

Cable tools were used from ..... feet to ..... feet, and from ..... feet to ..... feet

DATES

....., 19.... Put to producing Plugged & Abandoned, 19....

HISTORY OF OIL OR GAS WELL

The production for the first 24 hours was ..... barrels of fluid of which .....% was oil; .....% emulsion; .....% water; and .....% sediment. Gravity, °Bé.....

If gas well, cu. ft. per 24 hours ..... Gallons gasoline per 1,000 cu. ft. of gas .....

Rock pressure, lbs. per sq. in. .....

EMPLOYEES

....., Driller ....., Driller

....., Driller Zach Brooks Drilling Company ....., Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
			See attached sheets

FROM— TO— TOTAL FEET FORMATION

(OVER)

FORMATION RECORD—Continued

GEOLOGICAL PROSPECTUS

Division Billings Lease No. 3687

Operator Murphy Corporation Well Name East Poplar Unit Well No. 72

Location: Section SW SE 22 Township 28N Range 51E

Pool Name: East Poplar County Roosevelt State Montana

Type of Well: Oil: X Gas ____ Exploratory ____ Development X

Objective Formation Madison "C" Zone Projected Depth 5880'

Well Elevation 2150' K.B. (est.)

Expected Stratigraphic Section and Estimated Depths:

Judith River	840 (+1310)	Piper Shale	4360 (-2210)
Eagle	1193 (+ 957)	Piper Limestone	4435 (-2285)
Niobrara	2054 (+ 98)	Spearfish	4700 (-2550)
Greenhorn	2410 (- 260)	Amsden	4775 (-2625)
Muddy	2975 (- 825)	Heath	4905 (-2755)
Dakota	3190 (-1040)	Otter	5055 (-2905)
Morrison	3480 (-1330)	Kibbey Sandstone	5220 (-3070)
Swift	3675 (-1525)	Kibbey Limestone	5350 (-3200)
Vanguard	4000 (-1850)	Madison	5450 (-3300)
Rierdon	4175 (-2025)	"A" Zone	5570 (-3420)
		"B-1" Zone	5715 (-3565)
		"B-2" Zone	5733 (-3583)

Anticipated Pay Horizons, Net pay and Expected Depths:

Kibbey Sandstone	10'	4920 (-2770)
Madison "C" Zone	10'	5850 (-3700)

Recommended Coring and Formation Testing Program:

Core:	Test:	
Heath sands 40'	Heath Sandstone	
Kibbey Sandstone 20'	Kibbey Sandstone	
*"A" Zone 20'	*"A" Zone	
*"B" Zones 30'	*"B-1" Zone	All other tests at discretion
"C" Zone 30'	*"B-2" Zone	of well site geologist.
	"C" Zone	

* Core and test only if well is running higher than E.P.U. #55 on the Kibbey Limestone.

Recommended Sampling and Logging Program:

20' samples from 2000' to 4000'
10' samples from 4000' to total depth
5' samples through the following sections:
1- Muddy sandstone
2- Heath
3- Kibbey sandstone
4- Top Madison to "A" Zone.

Logging Program:
2" E.S. from bottom surface pipe - T.D.
5" E.S. from 2000' - T.D.
5" Microlog from 2000' - T.D.
25" Microlog from Top Madison - T.D.

Remarks: (including pertinent data relative to location accessibility, unusual drilling problems due to surface or subsurface conditions, etc.)

Bill Lane
[redacted] Geologist

3-9-56
Date

WELL DRILLING PLAN

Field or Area East Poplar Division Billings

County or Parish Roosevelt Total Anticipated Depth 5880'

Lease East Poplar Unit Well Name East Poplar Unit Well No. 72

Well Location SW SE Section 22-T28N-R51E, Roosevelt County

Lowest fresh water sand (For surface casing program):

Casing and tubing program:

	From	To	Size	Weight	Grade	Bit Size
Conductor	0	250	13-3/8"	48#	H	17-1/4"
Surface						
Intermediate						
Production	0	5880	5-1/2"	15.50#	J	8-3/4"
Tubing	0	5880	2-3/8"	4.70#	J	EUE

Potential Drilling Hazards Rathole ahead for 1000' or through the Judith River formation to check for water flow before setting 13-3/8" casing. If flow is encountered, ream down and set 9-5/8" through the zone. Do not set 13-3/8" in this event.

Mud Program Natural to 4400'. High Ph red mud from 4400' to T.D.

Coring Method and Size Core Bits to be Used Diamond 7-7/8"

Intervals Cores to be Analyzed Heath, Kibbey, and Madison "C" zone

Method of Drill Stem Testing 4 hour test with 30 minute shut in.

Anticipated Completion Zone Kibbey

Method of opening pay, perforation or open hole, and approximate interval: perforations

Expected Formation Treatments 500 gallons of mud acid.

Expected logs for Development, Evaluation, or Completion Purposes As in Geological Prospectus plus Lane Wells Gamma Ray-Neutron from 3000' to T.D.

Remarks: Dual completion of the Kibbey and Madison "C" Zone will be considered if the tests are favorable.

Date 3/9/56

Production Superintendent Harold Imler

COMPLETION DATA

CASING: Ran and cemented 33 jts. (1048.83') of 9-5/8", 32#, H-40, 8rd. thd., R-2, ST&C, American casing. Landed 11.50' below RKB at 1060.33'. Howco float shoe on bottom and Howco centralizer at 1045'. Cemented with 400 sacks of Ideal regular cement with 2 percent CaCl2. Circulated approximately 50 sacks of clean cement. Bumped plug with 1000#, released pressure, float held ok. Job complete at 4:00 P.M., 3-18-56. Tested 9-5/8" casing and blowout preventers with 1000# for 30 minutes, held ok.

COMPLETION: Plugged and abandoned 4-8-56. Plugged as follows--

Plug #1, 5850'-5775', 30 sacks Slo-set cement.
Plug #2, 5754'-5629', 50 sacks Slo-set cement.
Plug #3, 5580'-5455', 50 sacks Slo-set cement.
Plug #4, 5366'-5210', 60 sacks Slo-set cement.
Plug #5, 4910'-4990', 35 sacks Slo-set cement.
Plug #6, 830'- 900', 30 sacks Slo-set cement.
Bottom of 9-5/8" surface casing.
Plug #7, 8 sacks cement top of 9-5/8" surface casing.

Rig released at 2:00 A.M., 4-8-56.

E.P.U. #72

ELECTRO LOG DATA

TYPE OF LOG	INTERVAL LOGGED
Schlumberger Electrical Survey 2"	1064'-5997'
Schlumberger Microlog 5"	1064'-5997'

LOG TOPS

	Depth	Datum	Thickness
Eagle	1227	+ 930	
Niobrara	2080	+ 77	
Greenhorn	2427	- 270	
Graneros	2636	- 479	
Muddy Sd	3000	- 843	
Dakota	3225	-1068	
Swft	3684	-1527	
Vanguard	4012	-1855	
Rierdon	4197	-2040	
Piper Sh	4357	-2200	
Gypsum Sprgs	4520	-2363	
Spearfish	4728	-2571	
Amsden	4820	-2663	
Heath	4932	-2775	
Otter	5097	-2940	
Kibbey Sd	5238	-3081	
Kibbey Ls	5386	-3229	
Madison	5486	-3329	
A-1	5557	-3400	4'
A-2	5568	-3411	5'
A-3	5574	-3417	6'
A-4	5580	-3423	34'
B-1	5711	-3554	8'
B-2	5728	-3571	16'
B-3	5749	-3592	5'
B-4	5780	-3623	4'
B-5	5817	-3660	?
C-1	5857	-3700	?
C-2	5871	-3714	16'

E L E C T R O L O G D A T A

TYPE OF LOG	INTERVAL LOGGED
Schlumberger Electrical Survey 2"	1064'-5898'
Schlumberger Micrelog 5"	1064'-5898'

LOG TOPS

Eagle	1227	(+ 930)
Niobrara	2080	(+ 77)
Greenhorn	2427	(- 270)
Graneros	2636	(- 479)
Muddy Sandstone	3000	(- 843)
Dakota	3225	(-1068)
Swift	3684	(-1527)
Vanguard	4012	(-1855)
Rierdon	4197	(-2040)
Piper Shale	4357	(-2200)
Gypsum Springs	4520	(-2363)
Spearfish	4728	(-2571)
Amsden	4820	(-2663)
Heath	4932	(-2775)
Otter	5097	(-2940)
Kibbey Sandstone	5238	(-3081)
Kibbey Limestone	5386	(-3229)
Madison	5486	(-3329)
"A" Zone	5580	(-3423)
"B-1" Zone	5711	(-3554)
"B-2" Zone	5728	(-3571)
"C" Zone	5871	(-3714)

DRILL STEM TESTS

D.S.T. #1: 5842'-5881.5', Halliburton straddle packer test, on show on fractured planes above the "C" Zone Intercrystalline, 1/2" bottom choke, no water cushion. Tool open 2 hours, shut in 30 minutes. Tool opened with very weak blow, continued for one hour and then died. Recovered 5' drilling fluid, no show of oil, gas, or water. IBHFP--15#, FBHFP--15#, BHSIP--68#, Hydro--3365#.

D.S.T. #2: 5864'-5872', ("C" Zone Intercrystalline porosity), Halliburton single packer test, 1/2" bottom choke, no water cushion. Tool open 4 hours, shut in 30 minutes. Tool opened with weak blow and continued throughout test. Recovered 90' gas, 150' slightly oil-and-mud-cut salt water. IBHFP--15#, FBHFP--65#, BHSIP--2995#, Hydro--3365#.

D.S.T. #3: 5706'-5722', ("B-1" Zone), Halliburton straddle packer test (drill collars for tail pipe), 1/2" bottom choke, no water cushion. Tool open 4 hours, shut in 30 minutes. Tool opened with very weak blow, decreased to bubble at end of test. Recovered 630' slightly muddy salt water with trace of gas, no show of oil. IBHFP--15#, FBHFP--195#, BHSIP--0#, Hydro--3365#, bottom packer held ok.

CORE ANALYSIS REPORTS

Company MURPHY CORPORATION Date 4-6-68 Lab. No. 544 Well No. Unit #72 Location C SW SE 22-28N-51E

Formation "C" Zone Field East Poplar COunty Roosevelt State Montana Depths 5830-5872

Sample No.	Representative of Feet	Midpoint of Sample	Permeability		Effective Porosity	Density		Saturation % of Pore Space	
			Radial	Vertical	Percent	Bulk	Matrix	Resid. Oil	Water
	Core No. 4	5830-5872	Rec. 42'						
NS	5830-68								
1	68-69		0.02	5000+	8.9	2.49	2.72	6.4	30.3
2	69-70		0.07	0.82	7.0	2.51	2.70	4.3	76.6
3	70-71		0.29	5000+	18.9	2.23	2.75	9.0	50.5
4	71-72		0.32	0.05	15.1	2.33	2.75	25.4	46.1

CORE DESCRIPTIONS

Core No. 1 4955-4969, cut 14', recovered 11-1/2'

4'0"	Lime, shale and dolomites interbedded, gray, dense, lime, buff dolomite and dark gray shale, no show; top foot open vertical fracture, calcite replacement; entire matrix of unit hard and tight.
2'6"	Lime and shale as above but core highly fractured both vertical and horizontal, slight gas odor, few scattered spots of weak, golden fluorescence.
5'0"	Sandstone; medium grained, redish-brown, angular, well cemented, hard and tight, bottom foot developed slight porosity and permeability but no show.

Core No. 2 5230-5255, cut 25', recovered 25'.

5'6"	Shale; dark gray to black, platey, with hard white inclusions of anhydrite.
2'0"	Sandy siltstone; red and green, no show.
1'0"	Interbedded siltstone, interbedded in shale.
7'0"	Siltstone; sandy, fine grained, red, no show, no porosity and permeability.
8'6"	Siltstone; sandy, fine grained, red, black and green, no porosity and permeability or show.
1'0"	Mudstone; white, light gray, hairline fracture.

Core No. 3 5255-5275, cut 20', recovered 20'

2'0"	Sandstone; grayish-purple, medium grained, quartzitic, hard, tight, no porosity and permeability, no show.
1'0"	Shale; black, poker chip, hard, dense.
2'0"	Sandstone; grayish-purple, medium grained, quartzitic, hard, tight, no porosity and permeability, no show.
5'0"	Sandstone; reddish-brown, medium grained with poor porosity and permeability, hard, tight, no show.
3'0"	Shale; brick red, hard; siltstone, slightly silty.
7'0"	Sandstone; red, hard, dense, medium grained, no show in matrix, bottom 2' open vertical fracture, no show on planes.

Core No. 4 5830-5872, cut 42', recovered 42'.

14'0"	Limestone; thin beds of lime and anhydrite, dark gray lime, dense, no porosity and permeability, no show, light gray anhydrite.
3'5"	Limestone; light gray-brown, dense to finely crystalline, entire unit fractured from open to hairline, gas odor on fresh break, even golden fluorescence on hairline fractures, no show in matrix itself.

10'0"	Limestone; light gray, brown, dense with no fracturing, no show except 3 thin streaks of porosity developed in fine crystalline limestone with even golden fluorescence, oil odor and taste, first 2" - 1' down, second 4" - 6' down, third 6" - 9-1/2' down.
3'6"	Limestone; light gray with open vertical fracture cemented with calcite, spotty golden fluorescence on fracture planes, no show in matrix.
4'0"	Limestone; as above with no fracturing, four 2" streaks of porosity and permeability, bleeding oil from finely crystalline limestone, golden fluorescence.
2'6"	Limestone; light gray, dense, open vertical fracture leading down into the "C" Zone intercrystalline, fractures bleeding oil.
4'8"	Limestone; light gray-brown, fine crystalline with good fluorescence and odor, good matrix show, open vertical fractures throughout unit, poor porosity and permeability. ("C" Zone intercrystalline 12' low to #55, 4' high to #63.)

MUD PROGRAM SUMMARY

MUD SERVICE CO.: Northern Mud Company

MUD ADDITIVES AND COST:

Material	Surface Hole Amt.	Surface Hole Cost	Surface - T.D. Amt.	Surface - T.D. Cost	Total Amt.	Total Cost
Magcobar	418	1,181.90	37	104.63	455	1,286.53
Magcogel	131	283.74	38	82.31	169	366.05
Cement	5	9.25			5	9.25
Magcophos	1	27.50			1	27.50
Caustic Soda			34	459.00	34	459.00
Quebracho			58	768.50	58	768.50
Driscose			10	450.00	10	450.00
Hulls	20	90.00			20	90.00
Total Mud		1,592.39		1,864.44		3,456.83
Drayage		150.73		15.45		166.18
Total Cost		1,743.12		1,879.89		3,623.01

	Total Cost	Feet Drld.	Cost Per Foot	Days Used	Cost Per Day
UNIT MUD COSTS:					
Spud - T.D.	3,623.01	5899	.61	24	150.96
Spud - Surface	1,743.12	1075	1.62	3	581.04
Surface - T.D.	1,879.89	4824	.39	21	89.52

MUD PROPERTIES:

Depth	Weight	Viscosity	Water Loss	pH	Remarks
1075	10.7				Surface hole
4500	9.8	40	11.4	11	
4950	10.7	44	14.2	13	
5175	10.5	43	12.0	13.5	
5420	10.6	48	13.4	13	
5770	10.5	52	14.4	12.5	
5899 T.D.	10.3	57	10.3	13	

SUMMARY:

An 8 3/4" hole was drilled to 1110' and then the hole was reamed to 1075' with a 12 1/4" reamer. The 9 5/8" surface casing was set at 1060'. The drill pipe was stuck and circulation was lost while reaming. Also, it was necessary to weight up to 10.7#/gal mud to hold a water flow from the Judith River sand. As a result, the mud cost for drilling the surface hole was nearly half of the total mud cost.

The hole was drilled to a TD of 5899' with an 8 3/4" bit. At approximately 4400' the native clay and water mud was converted to a high pH red mud with addi-

tions of caustic and quebracho. Mud weight was controlled from 10.3# per gallon with additions of water or barite and the viscometric properties were maintained between 45 and 55 sec/qt with gel, quebracho, and caustic. Drisecose was added to control the water loss below 15 cc.

Four cores were taken and three drill stem tests were run. Good hole conditions were maintained throughout the drilling of the well. The mud cost from surface hole to TD was reasonable and the mud was maintained as recommended. The well was plugged and abandoned at 2:00 A.M., April 8, 1956.

D R I L L I N G B I T R E C O R D

Bit No.	Make	Size	Type	Serial No.	Depth Out
1	Sec.	8 3/4	53P	103685	1110
2	"	12 1/4	98J	37339	1110 Ream
1	"	8 3/4	53P	108685	2464 Rerun
3	"	"	S6	111659	3320
4	"	"	"	111658	3555
5	"	"	"	111665	3727
6	"	"	"	111555	4281
7	"	"	"	111663	4615
9	"	"	"	111550	4955
10	"	"	"	111634	4996
11	"	"	"	111684	5036
12	"	"	"	111557	5065
13	"	"	"	111538	5110
14	Hughes	"	OWV	85960	5230
15	"	"	"	85962	5387
16	"	"	"	51776	5573
17	"	"	"	85956	5811
18	"	"	"	Re-run	5898 T.D.

T O T C O R E C O R D

Depth Out	Degrees Off
300'	1/4
1660'	3/4
3732	1
5360	1

Christensen Diamond Core Bit Record
Bit Serial No. V-3028

Core No.	From	To	Footage
1	4955	4969	14
2	5230	5255	25
3	5255	5275	20
4	5830	5872	42

SAMPLE DESCRIPTION

2200	2260	Shale; light gray, micaceous, silty; sandstone; light gray to white with trace of pyrite.
2260	2420	Shale; light gray, slightly sandy with above gray shale.
2420		Sample Top Greenhorn
2420	2500	Shale; light gray, calcareous, with traces of tan, calcareous specks, some light gray, crystalline limestone; trace of above sandstone.
2500	2660	Shale; gray, micaceous, sticky; trace of above specks.
2660	2950	Shale; dark gray becoming silty, trace of light gray siltstone.
2950	2990	Shale and siltstone as above.
2990		Sample Top Muddy
2990	3080	Sandstone; light gray to medium gray, fine to medium grained, poor porosity and permeability, no show, with trace of glauconitic sandstone, has black and white salt and pepper appearance, gray silty shale.
3080	3220	Shale; dark gray with trace of above sandstone.
3220		Sample Top Dakota
3220	3300	Shale; as above with trace of gray, waxy siltstone.
3300	3420	Shale; dark gray without siltstone.
3420	3540	Sandstone; fine grained, light gray, fair porosity and permeability, with gray shale as above.
3540	3580	Sandstone; medium grained, white, fair porosity and permeability, no show, dark gray shale.
3580	3640	Shale; dark gray, lignitic.
3640	3680	Shale; as above with light gray, fine grained, silty sandstone.
3680		Sample Top Swift
3680	3720	Sandstone; medium to fine grained, with trace of glauconitic, black, splintery shale.
3720	3780	Sandstone; as above with brown to black shales.

SAMPLE DESCRIPTION CONTINUED

3780	3900	Shale; dark gray to black splintery, with trace of brown and fine grained, white to light gray sandstone.
3900	3930	Sandstone; light gray, silty, fine grained, poor porosity and permeability, no show; trace of gray siltstone with dark gray shale.
3930	4000	Shale; dark gray with above siltstone.
4005		Sample Top Vanguard
4000	4020	Sandstone; fine, grayish-green, soft, fair porosity and permeability, no show; black splintery shale; traces of gray limey siltstone.
4020	4050	Shale; dark gray to black, splintery; calcareous sandstone as above.
4050	4070	Sandstone; fine to medium grained, gray with black carbonaceous spots, fair porosity and permeability, no show; above shale.
4070	4170	Shale; dark gray to black with some brownish gray silty shale; sandstone; as above becoming darker gray.
4175		Sample Top Rierdon
4170	4200	Sandstone; dark gray, silty sandstone with small speck of lignite, also dark gray siltstone.
4200	4240	Shale; dark gray, limey with above sandstone; traces of light cream to buff limestone; also trace aragonite.
4240	4230	Shale; dark gray, brown, with traces of pyrite.
4230	4360	Shale; dark gray, brown as above; trace of lignite.
4365		Sample Top Piper Shale
4360	4460	Shale; dark grays as above with browns and brownish-green, trace of red silty shale.
4460		Sample Top Piper Limestone
4460	4480	Limestone; light gray-brown, dense, with shales as above.
4480	4520	Shale; light gray with traces of red and dark gray plus the above limestone.
4520		Sample Top Gypsum Springs
4520	4570	Shale; as above with trace of soft white anhydrite with light gray to buff limestone.

SAMPLE DESCRIPTION CONTINUED

4570	4610	Shale; as above with salt and pepper, fine grained sandstone; limestone as above scattered.
4610	4630	Shale; as above with gray, silty sandstone with above salt and pepper sandstone.
4630	4680	Shale; dark gray to black with buff to gray, dense limestone.
4680	4720	Shale; as above with trace of white crystalline limestone.
4725		Sample Top Spearfish
4720	4820	Shale; brown to reddish, silty with traces of white crystalline lime; with above dark gray shales; also sandstone, fine grained, white to tan, hard, tight.
4820		Sample Top Amsden
4820	4830	Dolomite; light gray to tan; light gray, finely crystalline limestone; above shale.
4830	4840	Shale; dark gray with traces of above dolomite and limestone.
4840	4880	Limestone; light gray to buff, no porosity, no permeability; multi colored shale.
4880	4930	Shale; dark gray, platey; limestone as above.
4930		Sample Top Heath
4930	4955	Shale; as above with traces of light gray, limey siltstone.
4955	4969	Core No. 1, cut 14', recovered 11-1/2'.
4969	4990	Sandstone; medium grained, red and white, well cemented, angular, trace porosity and permeability, no show; dark gray shale.
4990	5000	Shale; dark gray with trace of above sandstone.
5000	5035	Sandstone, red, white and purple, medium grained, well cemented, trace porosity and permeability, no show; dark gray shale, red and purple.
5035	5090	Shale; multi-colored, dark gray, purple and brown.
5090		Sample Top Otter
5090	5100	Shale; multi-colored, with green Otter and above multi-colored shales; trace of buff colored dolomite.
5100	5110	Dolomite; light tan, dense, poor porosity and permeability, trace of asphalt on few pieces, will cut but no fluorescence.

SAMPLE DESCRIPTION CONTINUED

5110	5120	Shale; dark grays, light gray-brown.
5120	5140	Dolomite and limestone; dark tan to brown, crystalline; light tan, gray limestone.
5140	5150	Shale; dark grays to black, brittle.
5150	5170	Dolomite and limestone; dark tan to brown; gray limestone.
5170	5220	Shale; dark gray to black.
5230		Sample Top Kibbey
5220	5230	Shale; hard, red, and black platey shale with traces of anhydrite; trace fine grained, hard, tight sandstone.
5230	5255	Core No. 2, cut 25', recovered 25'.
5255	5275	Core No. 3, cut 20', recovered 20'.
5275	5305	Shale; black, poker chip with trace of above sandstone; sandstone; red and white, medium grained, hard, fair porosity and permeability, no show.
5305	5325	Shale; dark gray to black with trace of red, silty shale.
5325	5345	Sandstone; red and white, fair porosity and permeability; some purple shales.
5345	5385	Sandstone; as above, no visible porosity and permeability; with black and purple shale.
5385		Sample Top Kibbey Limestone
5385	5400	Limestone; light gray to gray-brown, both earthy and crystalline; trace of anhydrite; purple and black shale.
5400	5420	Limestone; light gray-brown as above with trace porosity and permeability, no show.
5420	5485	Shale; dark gray with stringers of above limestone and scattered brown dolomite.
5485		Sample Top Madison
5485	5495	Limestone; light gray, brown, with tan, silty shale and white dense anhydrite.
5495	5505	Shale; multi-colored, dark grays, greens and browns.
5505	5515	Anhydrite and soft, white crystalline lime, no show.

SAMPLE DESCRIPTION CONTINUED

5515	5555	Limestone; light gray-brown; trace of above anhydrite and limestone; brown, silty shale and dark gray splintery, buff colored dolomite.
5555	5580	Limestone; light gray, with trace of porosity and permeability, no show.
5580		Sample Top "A" Zone
5580	5590	Limestone; dark gray-brown, microcrystalline with trace porosity and permeability, spotty weak fluorescence on individual pieces (less than 1% of total sample); fluorescence poor to no cut from pieces that have fluorescence; dark gray shale; trace of brown, sandy shale.
5590	5620	Limestone; dark gray, both dense to finely crystalline; as above with a few pieces of the above show.
5620	5650	Limestone; light gray, dense limestone with white to light gray anhydrite.
5650	5690	Anhydrite; light gray, dense; black shale; traces of buff colored dolomite; light gray limestone.
5690	5710	Limestone; dark gray, dense, no show; traces of above limestone and shale.
5712		Sample Top "B-1" Zone
5710	5740	Limestone; dark gray-brown, finely crystalline, to dense, pale yellow spotty fluorescence, poor cut from fluorescent pieces; trace light brown to buff dolomite, no show.
5740	5760	Anhydrite and shale.
5760	5770	Shale; dark gray, limey; dark gray, dense limestone and white anhydrite.
5770	5780	Anhydrite; white and light gray, dense.
5780	5830	Limestone; light to dark gray, brown; white scattered anhydrite, with brown to buff colored dolomite.
5830	5872	Core No. 4, cut 42', recovered 42'.
5870	5880	Limestone; as above.
5880	5898	Limestone; light gray, dense, no show.

Total Depth 5899 Schlumberger equals 5898 Driller.

SERVICE & TESTING

YAPUNCICH-SANDERSON LABORATORIES
P. O. BOX 593 BILLINGS, MONTANA 5 & 9½ N. 25TH ST.

WATER ANALYSIS REPORT

Lab. No. _____

Field East Poplar County Roosevelt State Montana
Well No. 72 Unit Location SW SE 22-28N-51E
Formation B-1 Zone Depths 5706-5722'
Operator Murphy Corporation Date Sampled 4-9-56
DST No. 3 Sample Date Analyzed 6-1-56
Other Data Tool open 4 hrs. SI 30 min. Recovered 630' slightly muddy salt water with trace of gas. FP 15-195 lbs., SIP 0 lbs., HP 3365 lbs. Sample clear reddish colored water with mud on bottom.

Constituents	PPM	MEQ.	MEQ. %
Sodium	47,098	2048.61	48.32
Calcium	1287	64.22	1.51
Magnesium	84	6.90	0.17
Sulfate	7268	151.17	3.57
Chloride	69,438	1958.15	46.19
Carbonate	0	0	0
Bicarbonate	635	10.41	0.24

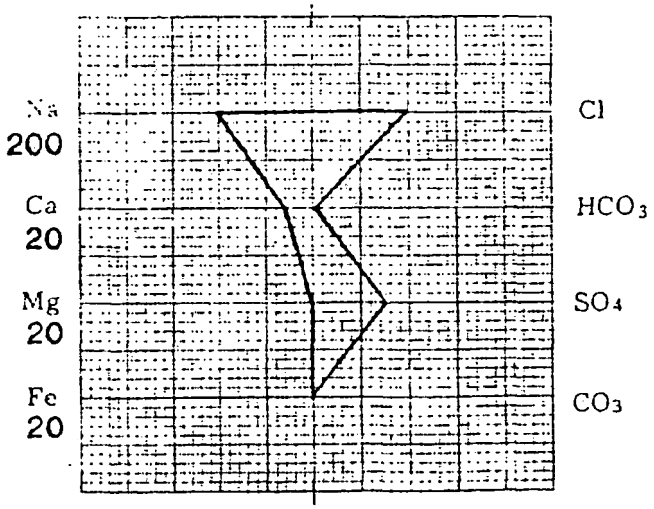
Total Solids in Parts per Million
By evaporation 127,960
After ignition 126,240
Calculated 125,488
pH 6.4
Specific Gravity @ 60°F 1.091
Resistivity @ 68°F ohms/meter³ 0.076

Chloride as NaCl 114,503 PPM. Total Solids From Resistivity as NaCl 121,732 PPM.

NOTE Sodium and potassium reported as sodium MEQ milliequivalents per liter PPM parts per million (milligrams per liter). 1 PPM equivalent to 0.0001%

WATER ANALYSIS PATTERN

Scale MEQ. Per Unit



WESTERN LITHO-PRINT, INC., BILLINGS, MONT

ocation: C SW SE Sec. 22-T28N-R51E
Spacing - 160 acres
levation: 2157 K.B. - 2145 Gr.
pudded: 3-16-56
ompleted: P & A 4-8-56
.D.: 5898 Driller - 5897 Schl.
rod. Zones: None

Schlumberger Tops

	Depth	Datum	Thickness
udith River	----	-----	
reenhorn	2427	- 270	
iddy Sd	3000	- 843	
akota Silt	3225	-1068	
iper Ls	4463	-2306	
nsden	4820	-2663	
eath	*4932	-2775	
tter	5097	-2940	
ibbey Sd	5238	-3081	
ibbey Ls	5386	-3229	
adison	5486	-3329	
-1	5557	-3400	4'
-2	5568	-3411	5'
-3	5574	-3417	6'
-4	*5580	-3423	34'
-1	*5711	-3554	8'
-2	5728	-3571	16'
-3	5749	-3592	5'
-4	5780	-3623	4'
-5	5817	-3660	?
-1	*5857	-3700	?
-2	*5871	-3714	16'

**Probable prod. Zones (From DST structural position, etc.
*Shows

Drill Pipe Corrections (Made)
4826' Driller = 4825' SLM (-1')
5275' Driller = 5276 SLM (+1')

#1 4955-4969' Rec. 11.5' Heath
#2 5230-5255' Rec. 25' Kibbey Sd.
#3 5255-5275' Rec. 20' Kibbey Sd.
#4 5830-5872' Rec. 42' C-2

Drill Stem Tests:
DST #1 5842-5861.5' C-1-2 Tool opn w/v.weak blow, cont'd 1 hr & died. Tool opn 2 hrs, SI 30 min. Rec. 5' drlg fluid, no show of oil, gas or water. IBHFP 15#, FBHFP 15#, BHSIP 68#, Hydro 3365#.

History Subsequent to Completion:
None

PRODUCTION &
INJECTION DATA

SURFACE EQUIPMENT

PLUGGING &
ABANDONMENT